



## MANAGEMENT OF INNOVATIVE STRATEGIES IN TEACHING AND LEARNING FOR TEACHER EDUCATION IN 21<sup>ST</sup> CENTURY

**Yakubu Achiyi Abutan**

Department of Educational Foundations  
Federal University of Education, Zaria  
Email: [achiyiyakubu@gmail.com](mailto:achiyiyakubu@gmail.com)

&

**Abdulkareem Shamsudeen**

Department of Educational Foundations  
Federal University of Education, Zaria  
Email: [mallamshams22@gmail.com](mailto:mallamshams22@gmail.com)

### Introduction

The progress of a nation to a great extent depends upon the quality of its teachers and for this reason teaching is being considered as the noblest of all professions. The productivity of the teachers (teaching) and the skills acquired by the learners (learning) also determine the quality of a country's education (Gidado, Abudullahi & Adamu, 2015). Management of innovative strategies in teaching and learning for teacher education in the 21st century plays a crucial role in preparing educators to navigate the ever-evolving educational landscape. As we face rapid technological advancements and diverse learner needs, it becomes evident that traditional teaching methods are insufficient for equipping future teachers with the necessary skills and competencies. Now days, advanced technology has effectively revolutionized human society. An unexpected by product of this revolution has been the emergence of a generation of children weaned on multidimensional, interactive media sources, a generation whose understanding and expectations of the world differ profoundly from that of the generations preceding them.

The 21st century and its attending prospects and challenges, inevitably becomes a justifiable yardstick for measuring the relevance and efficiency of teachers' roles in the contemporary society. It should not be forgotten that teacher education is a professional education of teachers who are tailored towards attainment of attitudes, skills and knowledge considered desirable so as to make them efficient and effective in their work in accordance with the needs of a society at any point in time (Osuji 2009).

This paper discussed the concept of innovation, types of innovation in education, need for innovation in education, innovations in education and strategic teaching and learning, the 21<sup>st</sup> century teaching and learning, imperatives for 21<sup>st</sup> century teacher education in Nigeria, challenges of teacher education in Nigeria and expectancy of teacher education in the 21<sup>st</sup> century in Nigeria.

### Concept of Innovation

Etymologically, the word "*Innovation*", is derived from the Latin word "*Innovare*" which means to change something into something new. It is a promotion of new ideas and practices in education and training. There has been seen a tremendous shift in the ways and means of education services over the years. Innovation is a driver of growth and well-being in the economy and society. In education, innovation has also become an imperative to bring about qualitative changes alongside the expansion of education systems. Innovation leads to more efficiency and improved outcomes in quality and equity of learning opportunities. Innovative instructional strategies engage students with different kinds of stimuli activity based learning. Innovation can be seen as something new that brings benefit for an organization and human society. Research and innovations play an important role in improving the quality of teachers and the training imparted to them for all levels of teaching. They demand to introduce new ideas and practices in classroom transaction and other curricular and co-curricular activities.

According to Achune (1997) innovation may not always mean a clean break from existing practice, it could merely involve integrating some aspects of the old ways to new discoveries to improve the system.



There is product or service innovation, innovations in technology, tools or instrument and innovation in knowledge or methods. Innovation can equally be categorized as tangible (technology tools) and intangible (methods, strategies and techniques). However, intangible innovation is less emphasized than tangible innovation (Serdyukor, 2019).

### **Types of Innovation in Education**

Innovation in education can be product or service innovation, innovation in technology, tools or instrument and innovations in knowledge or methods. Serdyukor (2017) classified innovations in education as new products and services such as new syllabi text books, or educational services; new processes for delivering their services such as e-learning services; new ways or organizing their activities like communication with student, parents through digital technologies.

Williams (2007) categorized types of innovation as method of teaching, content (curriculum), organization and management of education and students assessment (evaluation). Also Fedena (2019) saw types of innovation in education as virtual reality, artificial intelligence and machine learning, cloud computing, 3D printing, use of biometrics in schools. Others are digital readers and tablets, gamification, mobile technology, laptops, desktops and video conferencing. Innovations in education also include new teaching theory, methodological approach, training procedure, tool or processes or institutional hierarchy (Yanixa, 2008). The essence of these types of innovation is to drive the teaching and learning process and activity for the realization of educational objectives.

### **Innovations in Education and Strategic Teaching and Learning**

Innovation in education has to do with doing things differently and coming up with a process and product that yield an educational value. It also deals with seeking knowledge to support new and unique ideas in instructional techniques and strategies and remove outdated thinking that cannot support global changes. In educational innovation, methods and strategies of teaching and learning are challenged to support the success of teachers and students. Innovation in education is not merely technology (tangible innovation) but also the use of technology to empower students to become lifelong learners as well as achieve better educational outcomes (intangible technology).

According to Revathi, Elavarai & Sarawanan (2019) the innovative strategies in teaching and learning are as follows: Information and Communication Technology Teaching, Online interaction before, during and after class, Demonstration, Videos, Self-learning, Skill Communication, Group discussion, Problem solving teaching, Use digital tools and reusable learning objects, Smart board class rooms, Core qualities, Interactive approach, Critical thinking and analysis, Activity based, Cooperative teaching, Experimental approaches to class design, Project based teaching learning, Research based teaching learning. Jayashree (2017) in the same vein, noted that innovative strategies makes students and teachers more media literate and mostly suggested one is Multimedia. Teachers can also consider Z to A approach as it explains the application part of a particular concept first, so students would get interested in what the actual concept is. This approach helps in creating long lasting memories or correlation of a concept. Collaborative teaching, sometimes called cooperative teaching or team teaching also considered as an innovative teaching, it involves educators working in tandem to lead, instruct and mentor groups of students.

Computer-assisted instruction (CAI) is an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. It uses a combination of text, graphics, sound and video in enhancing the learning process to facilitate and improve instruction. CAI programs use tutorials, drill and practice, simulation, and problem solving approaches to present topics, and they test the student's understanding (Usman & Mududili 2020). Examples of computer-assisted instruction applications include guided drill and practice exercises, computer visualization of complex objects, and computer facilitated communication between students and teachers (Nazimuddin, 2014). Computer assisted learning was developed to enhance educational life. It is intended to make education more comfortable, precise, and fun!

Audu and Agbo (2010) view computer-assisted instruction as an instructional technique in which the computer instructs the students and the computer contains a stored instructional programme designed to inform, guide, control and test the students until a prescribed level of proficiency is reached. Sharma (2017) understands computer-assisted instruction as an interactive instructional technique whereby a computer is used to present the instructional material and monitor the learning that takes place. Eyo (2018) in like manner, sees



computer-assisted instruction as a self-learning technique, usually off-line or online using the computer as a tool to facilitate and improve instruction. On the other hand, cooperative teaching strategy is an instructional method involving students' participation in small group learning activities that promote positive interaction. Johnson (2013) defined cooperative teaching strategy as an active education strategy with small groups in order that the students will develop the learning of both themselves and the group members. It entails an amount of togetherness of idea and goal.

Cooperative teaching strategy according to Turan (2012) is also a teaching approach that helps students to learn from each other, creating small groups, towards common purpose in an academic theme in both classroom and other environments. It increases self-confidence and communication skills of individuals, strengthens their power of problem solving and critical thinking and enables students to participate actively in the process of teaching and learning. The most important feature of cooperative teaching method is that individuals study in small groups by helping each other to learn in order to achieve a mutual goal. However, not every study group is cooperative teaching environment since a cooperative teaching environment is dependent on the fact that the students in the groups try to take the learning of themselves and others to top level. For this reason, each member of the group knows that he/she cannot be successful unless other members are, so he/she tries to help others to learn. The achieved success is a group success that is achieved with the contribution of every member (Felder & Brent, 2013).

### **Need for Innovation in Education**

Innovation is very necessary in education because the society is not static but dynamic. If society is dynamic, education that drives the human and economic well being with cultural traditions equally needs innovation and change. Lars (2018) has posited the following as need for innovation in schools:

- a. It enables administrators, teachers and students to review research and optimize all tools in order to discover something new.
- b. It ushers in a different perspective to problem and means of solving them.
- c. It stimulates students to employ critical thinking in solving problems.
- d. It fosters collaboration and team work among colleagues in educational sectors.
- e. It introduces new techniques and methods that have been uncovered in education.
- f. It ushers in rapid and efficient means in actualization of education goals.
- g. It advances the school standard.
- h. It improves quality of instructional outcomes thereby leading to quality education.
- i. It measures up with global and best practices meeting up to the aspirations and expectations of the society.

### **Challenges of Teacher Education in Nigeria**

Teacher education in Nigeria has not been rosy and that justifies the discrepancies between the desired objectives and the output of the programme. The challenges/shortfalls have become so systemic that one would be tempted to neglect the recommendations from many scholars and studies, since the polity of the country gives a lip praise attention to them. In summarizing the reports of Education Sector analysis, National Teacher Education Policy, Education Support Programme in Nigeria, and Input Visit, as well as the studies of Ajeyalemi and Okebukola (as cited in Adeosun, 2014), the following are evident in teacher education in Nigeria:

- i. There is no congruity between teacher education curriculum and the new age teaching and learning environment which is characterized by constructivist learning, learner-centered instructions and integrating technology into the pedagogical process.
- ii. A gap exists between the curriculum taught to teacher trainees and the actual teaching experience and environment they are exposed to in schools.
- iii. The supposed professional education emphasizes on content delivery, examination and certification at the expense of creativity, innovation and research which are indices of lifelong learning.
- iv. The only course in NCE curriculum which is Primary Education Studies explicitly set out to prepare students for teaching in the primary school has always gained low enrolment, leaving primary schools with dearth of teachers.
- v. There is low quality and quantity of input in teacher training programmes.



- vi. Learning materials are not consistently available and this makes written materials not to play a coherent and pervasive role in the provision of a strong cognitive and structure-giving basis for the development of the required professional knowledge, skills and attitude of an effective teacher.
- vii. Lack of professional development opportunities for teachers.
- viii. The varying levels of qualifications characterizing teaching profession in Nigeria makes it heterogeneous unlike other established professions who have equivalent level of education and training. For instance private schools' teaching force are predominated by pre-service teachers.

In a more succinct manner, Okoli, Ogbonda & Ekpefa-Abdullahi (2015) highlighted that the contemporary Nigerian teacher education are inhibited by problem of quality assurance, insufficient funding, lack of personnel, poor facilities, lack of commitment by government, poor supervision, faulty selection process and poor teacher education curriculum.

### **The 21<sup>st</sup> Century Teaching and Learning**

The 21st century is known as the technological age in which the computer and other digital technologies have become popular and most efficient for teaching and learning in the classroom. Teaching and learning in the classroom during this 21st century must focus on adoption of effective innovative methods that will equip students with the necessary skills and competences needed in the society at this time. The Think Strategic group (2019) opined that education including schooling (which incorporates teaching and learning) in the 21st century is all about giving students the skills they need to succeed in this new world, and helping them grow the confidence to practice those skills. With so much information readily available to them, 21st century skills focus more on making sense of that information, sharing and using it in smart ways. Therefore, the four most important 21st century skills required to be inculcated into secondary school students as indicated by the Think Strategic group (2019) include the skills of; Creativity, Critical thinking, Communication and Collaboration. Other skills as further recognized by the American Library Association (ALA, 2022) may include: reading literacy, information literacy, technological literacy, skills for personal knowledge building, and oral literacy and numeracy.

The 21st Century society has been characterized by knowledge-driven economies, rapid information exchange and fast –moving communication technologies. Aside these, there are a lot of challenges facing our communities, along with instant connectivity to a global society; and civic literacy could not be relevant or applicable to the curricula in our schools. Boholano (2017) posited that the school system must be outfitted with a prerequisite of ICT resources; and curriculum must be designed to promote a collaborative learner-centered environment to which students will relate and respond. The 21st century learner must possess both self-direction and an ability to collaborate with individuals groups and machines (McCoog as cited in Boholano, 2017). It is obvious that pattern and focus of teaching and learning in the 20th century cannot meet with the demands of the 21st century.

The Partnerships for 21st Century Skills 2008 as cited in Adeosun (2014: 108) identified the following skills to be acquired by 21<sup>st</sup> century learners:

- a. A blend of content knowledge, specific skills, expertise and literacy
- b. Critical thinking, problem solving, creativity, flexibility, effective communication and collaboration, self-directed learning as a base for core academic knowledge; and
- c. Skills needed to make the best use of rapid changing technologies and vital to working and living in an increasingly complex, rapidly changing global society.

Invariably, the 21st century pedagogy should give credence to producing individuals that would possess skills in communication, creativity, critical thinking and collaboration. Learning contents should be loaded with knowledge and skills relevant to the inherent challenges of the 21st century. Teaching and learning activities should be problem solving based as well as teachers' pedagogical approaches. Learners should be exposed to learning experiences that will be relevant to the realities of the looming societal challenges; making them conscious of the fact that they are acquiring the skills to remedy those challenges. Classroom instructions and learning packages should be driven by the fast-moving communication technologies.

### **Imperatives for 21<sup>st</sup> Century Teacher Education in Nigeria**

Looking at challenges and exigencies in the contemporary Nigerian society as a result of 21<sup>st</sup> century globalization and internationalization, as well as other looming political, social and economic worries, it





leaves no doubt that there should be a crucial need to reassess the nation's education, particularly the education of teachers who are expected to transfer the needed values, knowledge and skills to others. Iwuamadi and Anyanwu (2016) affirmed that it is through education that the society could meet the challenges of these changes. They equally suggested that the challenges and impacts of globalization, high technology, economic transformation, international competition and local development in the new century could be tackled if there are reforms and innovations in teacher education system aiming at promoting best practices and to meet up with the imperatives for 21<sup>st</sup> century education which are increased capacity and efficiency, improved effectiveness, easy accessibility and a competitive mindset.

Those who have acquired teacher education are expected to be academic specialists, methodologists, character trainers, counsellors/confidants, curriculum developers, diagnosticians, facilitators, administrators, evaluators, public relation officers, professionals etc (Iwuamadi & Anyanwu 2016). Similarly, with the rapid development in technologies, rapid exchange of information and fast moving communication characterizing the 21<sup>st</sup> century, coupled with the following skills expected to be developed by contemporary students/learners: proficient communicators, creators, critical thinkers, and collaborators (The Four Cs of the 21<sup>st</sup> Century), there seems no congruity between the potentials of teacher education programmes output and achievement of the aforementioned. Oyeleke et.al (2013) agrees to this when he says, "Teachers seem not to have demonstrated competence in instilling creative ability in the learners at any educational level".

### **Expectancy of Teacher Education in the 21<sup>st</sup> Century in Nigeria**

Just as it is stated in fourth of the goals of teacher education," to provide teachers with the intellectual and professional background adequate for their assignment and to make them adaptable to changing situations' (NPE,2013), teacher education programmes are expected to produce professionals endowed values, knowledge and skills that reflect today's society, so that they can reproduce critical thinkers, problem-solvers, creators and collaborators that will measure up with 21<sup>st</sup> century demands. Education should not be a mere reflection of social and economic forces at work in the society, it should also be an important means of shaping the socio-economic and cultural forces and determining the direction of their growth. There should be circularity in the interrelation of education and a range of other human and social factors (Singh, 1991). Invariably, teacher education curriculum in Nigeria should not only reflect the contemporary challenges in the Nigerian society, it should be structured to shape these challenges taking cognizance of their resultant exigencies and determining direction of growth. Jokthan (2012:178) having examined the challenges of teacher education in Nigeria made the following contributions:

1. Teacher education in the 21<sup>st</sup> century should provide opportunities for teachers to have appropriate knowledge and skills to meet the new needs of school and society, most particularly as a result of increasing globalization and the use of information and communication technologies.
2. Newly recruited teachers should undergo a systematic induction programme to make adequate provision for professional development of teachers.
3. Teacher education should focus on training teachers to be reflective in practice, be active in learning and be innovative, creative and partnership building.
4. At higher education, the personnel who train teachers or eventually take up teaching in tertiary institutions should be subjected to evaluation by students in both content and personality.
5. The curriculum needs to be reviewed to ensure that it supports the development of the above.

In addition to the above, the evaluation of the personnel should be extended to evaluation of methodologies. Lecturers who train teachers should discard lecture method and put into practice those pedagogical approaches they are transferring as knowledge and skills to trainee teachers. Succinctly put, Iwuamadi and Anyanwu (2016) suggested the following as best practices for the 21<sup>st</sup> century teacher education in Nigeria:

- Teacher education curriculum should focus on Contextualized Multiple Intelligence and learning ability, students' learning and development; and school's development. This will offer teachers ample opportunities to individualize localize and globalize learning and teaching.
- Teacher education curriculum should have global relevance and exposure; world-class material and related to technological, economical, political, cultural, and learning globalization.
- The curriculum should also have local and community relevance to offer pre-service teachers opportunities to localize teaching and learning.



- The curriculum should be flexible and adaptable in terms of learning targets, contents, methods, schedules to meet the developmental needs of individual teachers.
- Pedagogical practices should embrace the use of information communication technology; facilitate teachers' life-long learning, offer teachers multiple sources of learning, encourage a local and global network of learning, and should equally be enhanced with learning World-wide IT pedagogical environment and other meaningful learning infrastructures.

## Conclusion

In conclusion, management of innovative strategies in teaching and learning for teacher education in the 21st century plays a crucial role in preparing educators to navigate the ever-evolving educational landscape. As we face rapid technological advancements and diverse learner needs, it becomes evident that traditional teaching methods are insufficient for equipping future teachers with the necessary skills and competencies. Emphasizing the integration of innovative strategies such as blended learning, digital tools, collaborative learning, and reflective practices can foster an environment that encourages creativity, critical thinking, and adaptability. Ultimately, the management of innovative strategies in teacher education must be seen as an ongoing process that requires collaboration, resourcefulness, and a clear vision for the future of education. By adopting these approaches, we can ensure that educators are not only prepared for the current educational demands but are also equipped to drive change and inspire innovation in their own classrooms.

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